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EXAMINER	
MULLINS, BURTON S	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 04/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/817,622	CHITAYAT ET AL.	
	Examiner	Art Unit	
	Burton S. Mullins	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 6-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-2, 4, 7-10 and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kemmer (US 4,234,831) in view of Spinner et al. (US 5,771,174) and Mizutani (US 5,532,533). Kemmer teaches an integrated rotary-linear actuator system, comprising: a plunger (rotor 3) movable along and rotatable about a longitudinal axis extending through the plunger (and shaft 6); wherein the plunger 3 is supported against a motor support (e.g., liner 7 & flange 9) via bearings 4 and 8 (Fig.1); a coil system having two sets of coils S1-S8 (i.e., radial- and axial-motion coil sets) arranged to, when energized, interact with the plunger, the first set of coils operative to provide an electric field to effect movement of the plunger in a linear (axial) mode (c.2, lines 51-56; c.3, lines 14-35), the second set of coils operative to effect movement of the plunger in a rotational mode (c.2, lines 43-50; c.3, lines 1-13); an amplifier (part of inverter with outputs A1-A8; Fig.4) coupled to the coils and operative to provide electrical energy to energize the coils; and a control system integrated with the amplifier (converter/decoder with input; Fig.4). Kemmer does not teach: 1) a network interface operative to receive control information from the actuator; and 2) the control system and associated rotary-linear motor "integrated into an single module."

Regarding (1), Spinner teaches a distributed intelligence control system for controlling plural actuators 26 (Fig.2) and respective controllers 30 connected by connections 32 with a network bus 24 and gateway or "network interface" 22 (Fig.1). The network interface

interprets messages from the supervisory control system (computer) 20 and converts and distributes this information to the actuator controllers. The network interface also converts and transmits information originating from the actuator, e.g., position and status, to the control system (c.4, lines 23-30). Such a LAN network as in Spinner is desirable as a means of communication between a central host controller and a series of actuators (c.2, lines 49-52).

Regarding (2), Mizutani teaches a servo motor integral with its control apparatus. Specifically, printed circuit board 58 is fitted to a portion extending in the radial direction of bearing 5 from the housing 51b and is loaded with power circuit 31 and signal processing circuit 24. A printed circuit board 60 is layered with the printed circuit 58 via a spacer 33 and is loaded with control circuit 32 and fixed to chassis 51 (c.6, lines 42-49). Among other advantages (c.11, lines 6-67), the integration of the control with the motor does not require sockets and terminals (c.8, lines 41-43); the heat generated by switching loss, etc., of the transistors in the power circuit may be transmitted to cooling fins, to improve cooling efficiency (c.8, lines 53-59); and water and/or oil is prevented from entering parts of the circuit (c.9, lines 16-20; 30-41).

It would have been obvious to one of ordinary skill at the time of the invention to modify Kemmer and provide: 1) a network interface per Spinner since this would have been a desirable means of establishing communication between a central host and an actuator; and 2) an integrated control system and associated rotary-linear motor into an single module per Mizutani since this would have been desirable to facilitate assembly, improve cooling efficiency and prevent water and/or oil from entering.

Regarding claims 2 and 16, though Kemmer teaches only one magnet or "motor", duplication of parts of an invention, i.e., providing an "array of magnets" such that plural motors are provided, has been held to involve ordinary skill. St. Regis Paper Co. v. Bemis Co. 193 USPQ 8, (7th Cir.1977).

Regarding claim 4, the motor support (tube 7) in Kemmer comprises a bearing support and a housing that define a well operative to receive the plunger (rotor 3), the plunger being supported by bearings 4 located between the plunger and the bearing support, such that the plunger is axially movable along the longitudinal axis between a retracted position and an extended position and rotatable about the longitudinal axis (Fig.1).

Regarding claims 9-10, the actuator controllers in Spinner comprise "sensors" since they transmit actuator information, e.g., position and status, to the host control system. The host includes program data operative to program operating characteristics of at least part of the integrated rotary-linear actuator system based on evaluation of the condition data from the integrated rotary-linear actuator system (c.7, line 9-c.8, line 34).

Regarding claim 17, Spinner includes a method for controlling plural actuators including a network interface to enable communication over an associated network, the method comprising: receiving control information (from host 20) at the network interface of the integrated rotary-linear actuator system via the associated network; and programming operating parameters of the rotary-linear actuator system based on the received control information (various parameters of the control algorithm are shown in c.6, lines 44+).

Regarding claim 18, the communications interface of Spinner including a network interface card (c.5, lines 1-28) would use a network protocol. Regarding claim 19, the control

information includes program data, the operating parameters of the rotary-linear actuator system being programmed based on the program data (c.6, lines 5+). Regarding claim 20, Spinner's system senses conditions, e.g. position and state, of the actuators and provides a sensor signal indicative of the sensed at least one condition, which is sent from the actuator to the computer 20 via the network interface 22 using the network protocol. Regarding claim 21, the control information includes program data (algorithm parameters given in c.6, line 44+) to program the operating parameters of at least part of the actuator based on evaluation of the condition data sent from the actuator.

3. Claims 11-15, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sudo et al. (US 4,644,205) in view of Spinner et al. (US 5,771,174) and Mizutani (US 5,532,533). Sudo teaches a rotary-linear actuator system, comprising: a motor support (stationary member 12) having a well (Fig.2); a plunger (floating member 14) supported via (electromagnetic) bearings for movement in at least part of the well so as to enable axial movement of the plunger relative to the well along a longitudinal axis of the plunger and rotational movement of the plunger about the longitudinal axis; an array of magnets (34a-34d/36a-36d) associated with the plunger (Fig.2), wherein half of the magnets are oriented such that their north poles point radially outward and the other half radially inward (Fig.7); a first set of coils 42/44 (Fig.2) arranged to, when energized, apply an electric field that interacts with the array of magnets and provides an axial force to drive the plunger element in a linear mode (c.3, line 32); a second set of coils 50a-50h (Fig.2) arranged to, when energized, apply an electric field that interacts with the array of magnets and provides a tangential force to drive the plunger element in a rotational mode (c.3, line 47); and an

integrated control system 66 which selectively energizes the first and second sets of coils to effect movement of the plunger in at least one of the linear and rotational modes.

Sudo does not 1) have a network interface operative to receive control information via an associated network, or 2) "integrate" the control system and an associated rotary-linear motor "into an single module."

Regarding (1), Spinner teaches a distributed intelligence control system for controlling plural actuators 26 (Fig.2) and respective controllers 30 connected by connections 32 with a network bus 24 and gateway or "network interface" 22 (Fig.1). The network interface interprets messages from the supervisory control system (computer) 20 and converts and distributes this information to the actuator controllers. The network interface also converts and transmits information originating from the actuator, e.g., position and status, to the control system (c.4, lines 23-30). The network interface also converts and transmits information originating from the actuator, e.g., position and status, to the control system (c.4, lines 23-30). Such a LAN network as in Spinner is desirable as a means of communication between a central host controller and a series of actuators (c.2, lines 49-52).

Regarding (2), Mizutani teaches a servo motor integral with its control apparatus. Specifically, printed circuit board 58 is fitted to a portion extending in the radial direction of bearing 5 from the housing 51b and is loaded with power circuit 31 and signal processing circuit 24. A printed circuit board 60 is layered with the printed circuit 58 via a spacer 33 and is loaded with control circuit 32 and fixed to chassis 51 (c.6, lines 42-49). Among other advantages (c.11, lines 6-67), the integration of the control with the motor does not require sockets and terminals (c.8, lines 41-43); the heat generated by switching loss, etc., of the

transistors in the power circuit may be transmitted to cooling fins, to improve cooling efficiency (c.8, lines 53-59); and water and/or oil is prevented from entering parts of the circuit (c.9, lines 16-20; 30-41).

It would have been obvious to one of ordinary skill at the time of the invention to modify Sudo and provide: 1) a network interface per Spinner since this would have been a desirable means of establishing communication between a central host and an actuator; and 2) an integrated control system and associated rotary-linear motor into an single module per Mizutani since this would have been desirable to facilitate assembly, improve cooling efficiency and prevent water and/or oil from entering.

Regarding claim 12, the communications interface of Spinner including a network interface card (c.5, lines 1-28) would use a network protocol. Regarding claim 13, the control information includes program data, the operating parameters of the rotary-linear actuator system being programmed based on the program data (c.6, lines 5+). Regarding claim 14, Spinner's system senses conditions, e.g. position and state, of the actuators and provides a sensor signal indicative of the sensed at least one condition, which is sent from the actuator to the computer 20 via the network interface 22 using the network protocol. Regarding claim 15, the control information includes program data (algorithm parameters given in c.6, line 44+) to program the operating parameters of at least part of the actuator based on evaluation of the condition data sent from the actuator.

4. Claims 1-10 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sudo et al. (US 4,644,205) in view of Spinner et al. (US 5,771,174), Gerard (US 4,751,437) and Mizutani (US 5,532,533). Sudo teaches a rotary-linear actuator system, comprising: a

motor support (stationary member 12) having a well (Fig.2); a plunger (floating member 14) supported for movement in at least part of the well so as to enable axial movement of the plunger relative to the well along a longitudinal axis of the plunger and rotational movement of the plunger about the longitudinal axis; an array of magnets (34a-34d/36a-36d) associated with the plunger (Fig.2); a first set of coils 42/44 (Fig.2) arranged to, when energized, apply an electric field that interacts with the array of magnets and provides an axial force to drive the plunger element in a linear mode (c.3, line 32); a second set of coils 50a-50h (Fig.2) arranged to, when energized, apply an electric field that interacts with the array of magnets and provides a tangential force to drive the plunger element in a rotational mode (c.3, line 47); and an integrated control system 66 which selectively energizes the first and second sets of coils to effect movement of the plunger in at least one of the linear and rotational modes.

Sudo does not teach: 1) a network interface operative to receive control information via an associated network; 2) an amplifier; and 3) a control system "integrate[d]" with the associated rotary-linear motor "into an single module."

Regarding (1), Spinner teaches a distributed intelligence control system for controlling plural actuators 26 (Fig.2) and respective controllers 30 connected by connections 32 with a network bus 24 and gateway or "network interface" 22 (Fig.1). The network interface interprets messages from the supervisory control system (computer) 20 and converts and distributes this information to the actuator controllers. The network interface also converts and transmits diagnostic information originating from the actuator, e.g., position and status, to the control system (computer) 20 associated with the network (c.4, lines 23-30). The network interface also converts and transmits information originating from the actuator, e.g., position

and status, to the control system (c.4, lines 23-30). Such a LAN network as in Spinner is desirable as a means of communication between a central host controller and a series of actuators (c.2, lines 49-52).

Regarding (2), Gerard teaches a linear motor and servo loop drive circuit (Fig.1) including an amplifier 40 which supplies current to the coil 28 (c.3, lines 40-41).

Regarding (3), Mizutani teaches a servo motor integral with its control apparatus. Specifically, printed circuit board 58 is fitted to a portion extending in the radial direction of bearing 5 from the housing 51b and is loaded with power circuit 31 and signal processing circuit 24. A printed circuit board 60 is layered with the printed circuit 58 via a spacer 33 and is loaded with control circuit 32 and fixed to chassis 51 (c.6, lines 42-49). Among other advantages (c.11, lines 6-67), the integration of the control with the motor does not require sockets and terminals (c.8, lines 41-43); the heat generated by switching loss, etc., of the transistors in the power circuit may be transmitted to cooling fins, to improve cooling efficiency (c.8, lines 53-59); and water and/or oil is prevented from entering parts of the circuit (c.9, lines 16-20; 30-41).

It would have been obvious to one of ordinary skill at the time of the invention to modify Sudo and provide: 1) a network interface per Spinner since this would have been a desirable means of establishing communication between a central host and an actuator; 2) an amplifier in the drive control per Gerard since amplifiers would have been desirable to supply current to the coils; and 3) a control system integrated with the associated rotary-linear motor into an single module per Mizutani since this would have been desirable to facilitate assembly, improve cooling efficiency and prevent water and/or oil from entering.

Regarding the remaining claims, see the discussion in relevant sections of above.

5. Claims 1-4, 7-10 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kemmer in view of Lee (US 4,692,678) and Mizutani (US 5,532,533). Kemmer teaches an integrated rotary-linear actuator system, comprising: a plunger (rotor 3) movable along and rotatable about a longitudinal axis extending through the plunger (and shaft 6); a coil system having coils S1-S8 arranged to, when energized, interact with the plunger to move the plunger in at least one of a rotational mode and in a linear mode (abstract); an amplifier (part of inverter with outputs A1-A8; Fig.4) coupled to the coils and operative to provide electrical energy to energize the coils; and a control system coupled with the amplifier (converter/decoder with input; Fig.4).

Kemmer does not teach: 1) a network interface operative to receive control information from the actuator; and 2) the control system and associated rotary-linear motor "integrated into an single module."

Regarding (1), Lee teaches a motor closed-loop servo system including a plunger servo-motor Z with armature 18 and plural field coils 15/16 (Fig.5) coupled to a power amplifier Y (Fig.3), and a control system X coupled with the amplifier, the control system X having a network interface operative to receive correction or control signal information from control computer W (c.5, lines 14-25), the control system X being operative to control current signals (signals Q and T from amplifier Y) to the coils 15/16 to effect precise movement of the armature 18 based on the control information received from the computer W via the network interface (c.5, lines 14-25). Lee's integrated system provides a linear motor with a great

degree of flexibility, efficiency, and accuracy required in sensitive instruments such as optics, lasers, guidance, robotic and medical perfusion technologies (c.2, lines 13-29).

Regarding (2), Mizutani teaches a servo motor integral with its control apparatus to eliminate sockets and terminals (c.8, lines 41-43); improve cooling efficiency (c.8, lines 53-59); and prevent water and/or oil from entering (c.9, lines 16-20; 30-41).

It would have been obvious to one having ordinary skill to modify Kemmer's motor and provide: 1) an integrated servo control system including a network interface of Lee since this would have provided the motor with a desirable degree of flexibility, efficiency and accuracy; and 2) a control system integrated with the associated rotary-linear motor into an single module per Mizutani since this would have been desirable to facilitate assembly, improve cooling efficiency and prevent water and/or oil from entering.

Regarding claims 2 and 16, though Kemmer teaches only one magnet or "motor", duplication of parts of an invention, i.e., providing an "array of magnets" such that plural motors are provided, has been held to involve ordinary skill. St. Regis Paper Co. v. Bemis Co. 193 USPQ 8, (7^{th} Cir.1977).

Regarding claim 4, the motor support (tube 7) in Kemmer comprises a bearing support and a housing that define a well operative to receive the plunger (rotor 3), the plunger being supported by bearings 4 located between the plunger and the bearing support, such that the plunger is axially movable along the longitudinal axis between a retracted position and an extended position and rotatable about the longitudinal axis (Fig.1).

Regarding claims 7-10, Lee's interface inherently includes a network protocol connecting it with various internal computer hardware via a bus (Fig.4), and the interface X

includes various sensors transmitting voltage magnitude, current, displacement and velocity signals A-F to the computer via the network interface (Fig.3). Algorithms or programs are run by the computer (c.2, lines 7-12).

Regarding claims 17-21, the method is carried out by the apparatus of Kemmer and Lee. Lee in particular teaches the data transfer method between the computer W and motor Z via interface X.

6. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sudo et al. (US 4,644,205) in view of Lee and Mizutani. Sudo teaches a rotary-linear actuator system, comprising: a motor support (stationary member 12) having a well (Fig.2); a plunger (floating member 14) supported for movement in at least part of the well so as to enable axial movement of the plunger relative to the well along a longitudinal axis of the plunger and rotational movement of the plunger about the longitudinal axis; an array of magnets (34a-34d/36a-36d) associated with the plunger (Fig.2); a first set of coils 42/44 (Fig.2) arranged to, when energized, apply an electric field that interacts with the array of magnets and provides an axial force to drive the plunger element in a linear mode (c.3, line 32); a second set of coils 50a-50h (Fig.2) arranged to, when energized, apply an electric field that interacts with the array of magnets and provides a tangential force to drive the plunger element in a rotational mode (c.3, line 47); and an integrated control system 66 which selectively energizes the first and second sets of coils to effect movement of the plunger in at least one of the linear and rotational modes.

Sudo does not teach: 1) a network interface operative to receive control information via an associated network; and 2) a control system "integrate[d]" with the associated rotary-linear motor "into an single module."

Regarding (1), Lee teaches a motor closed-loop servo system including a plunger servo-motor Z with armature 18 and plural field coils 15/16 (Fig.5) coupled to a power amplifier Y (Fig.3), and a control system X coupled with the amplifier, the control system X having a network interface operative to receive correction or control signal information from control computer W (c.5, lines 14-25), the control system X being operative to control current signals (signals Q and T from amplifier Y) to the coils 15/16 to effect precise movement of the armature 18 based on the control information received from the computer W via the network interface (c.5, lines 14-25). Lee's integrated system provides a linear motor with a great degree of flexibility, efficiency, and accuracy required in sensitive instruments such as optics, lasers, guidance, robotic and medical perfusion technologies (c.2, lines 13-29).

Regarding (2), Mizutani teaches a servo motor integral with its control apparatus to eliminate sockets and terminals (c.8, lines 41-43); improve cooling efficiency (c.8, lines 53-59); and prevent water and/or oil from entering (c.9, lines 16-20; 30-41).

It would have been obvious to one having ordinary skill to modify Sudo's motor and provide: 1) an integrated servo control system including a network interface of Lee since this would have provided the motor with a desirable degree of flexibility, efficiency and accuracy; and 2) a control system integrated with the associated rotary-linear motor into an single module per Mizutani since this would have been desirable to facilitate assembly, improve cooling efficiency and prevent water and/or oil from entering.

Regarding claim 12, the communications interface of Lee would use a network protocol to connect the interface with the various computer parts via a bus (Fig.4). Regarding claims 13-15, Lee teaches algorithms performed by the computer W using various sensed parameters to generate control signals (c.7, lines 50-56).

7. Claims 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sudo in view of Horikoshi et al. (US 5,142,172), Gerard (US 4,751,437) and Spinner et al. (US 5,771,174). Sudo teaches an integrated rotary-linear actuator system, comprising: a plunger (floating member) 14 movable along and rotatable about a longitudinal axis extending through the plunger (Fig.10), wherein the plunger includes an inner 28 and an outer 26 cylindrical portion open at one end (see Fig.10) with permanent magnets 34a/36a and 100a/102a attached to the respective inner walls of the inner and outer cylindrical portions 28 and 26 (Fig.10); and a coil system having coils 42/44/50a/50b (Fig.10) arranged to, when energized, interact with the magnets 34a/36a/100a/102a attached to the plunger 14 to move the plunger in rotational mode and linear modes.

Sudo does not teach: 1) air bearings supporting the plunger against an actuator support stage; 2) an amplifier coupled to the coils to provide electric energy to the coils; and 3) a control system integrated into a single module with an associated rotary-linear actuator having a network interface for receiving and transmitting at least one of control and diagnostic information to an associated network.

Regarding (1), Horikoshi teaches a gas bearing 1 used to support a shaft 3 of a voice coil 13 at a desired position (c.1, lines 36-42).

Regarding (2), Gerard teaches a linear motor and servo loop drive circuit (Fig.1) including an amplifier 40 which supplies current to the coil 28 (c.3, lines 40-41).

Regarding (3), Spinner teaches a distributed intelligence control system for controlling plural actuators 26 (Fig.2) and respective controllers 30 connected by connections 32 with a network bus 24 and gateway or "network interface" 22 (Fig.1). The network interface interprets messages from the supervisory control system (computer) 20 and converts and distributes this information to the actuator controllers. The network interface also converts and transmits diagnostic information originating from the actuator, e.g., position and status, to the control system (computer) 20 associated with the network (c.4, lines 23-30). The network interface also converts and transmits information originating from the actuator, e.g., position and status, to the control system (c.4, lines 23-30). Such a LAN network as in Spinner is desirable as a means of communication between a central host controller and a series of actuators (c.2, lines 49-52).

It would have been obvious to one of ordinary skill at the time of the invention to modify Sudo and provide: 1) a gas bearing per Horikoshi since this would have been desirable to support the plunger at a desired position; 2) an amplifier in the drive control per Gerard since amplifiers would have been desirable to supply current to the coils; and 3) a network interface per Spinner since this would have been a desirable means of establishing communication between a central host and an actuator.

Regarding claim 23, each actuator motor 26 in Spinner includes an integrated linear variable differential transformer 38, a well-known displacement measuring device (c.4, lines 4-6). This would determine the position of the plunger.

Regarding claims 24 and 26, Spinner includes a computer (host control system) 20 which communicates control information to the control system of each actuator via ethernet 21.

Regarding claims 25 and 27, Spinner's host computer 20 retrieves diagnostic information of the actuators via the network (c.3, lines 46-50 & c.4, lines 23-30), and also "calibrates" the actuators by calculating new setpoint parameters and transmiting these to the actuators (c.4, lines 43-47).

Response to Arguments

8. Applicant's arguments filed March 2, 2004 have been fully considered but they are not persuasive. Applicant argues that Spinner's network interface is not "integrally affixed" to the control system; however, the examiner notes that this language is not in the claims. Rather, the broad and somewhat vague term "integrated" is used, i.e., "the control system and an associated rotary-linear motor are integrated into a single module." While it is true that Spinner's host computer 20 is not mechanically affixed to the actuator, Mizutani was relied upon to teach a servo motor integral with, i.e. "integrally affixed", to its control apparatus. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is

what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The network interface in Spinner is desirable as a means of communication between a central host controller and a series of actuators (c.2, lines 49-52). Mizutani's control system is integrated with the servo motor to eliminate sockets and terminals (c.8, lines 41-43); improve cooling efficiency (c.8, lines 53-59); and prevent water and/or oil from entering (c.9, lines 16-20; 30-41).

Similarly, applicant argues against the combinations of Sudo, Spinner, Gerard and Mizutani and Kemmer, Lee and Mizutani by attacking the references individually. The arguments are not persuasive because, as stated above, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. Neither Gerard nor Lee was recited for teaching "integration" of the control onto an individual servo motor. Rather, Mizutani's control system is integrated with the servo motor to eliminate sockets and terminals (c.8, lines 41-43); improve cooling efficiency (c.8, lines 53-59); and prevent water and/or oil from entering (c.9, lines 16-20; 30-41).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory

period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Burton S. Mullins
Primary Examiner
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